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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

IN RE GOOGLE PLAY CONSUMER ANTITRUST LITIGATION

THIS DOCUMENT RELATES TO:

In re Google Play Consumer Antitrust Litigation, Case No. 3:20-cv-05761-JD

State of Utah et al. v. Google LLC et al., Case No. 3:21-cv-05227-JD

Case No. 3:21-md-02981-JD

DEFENDANTS' NOTICE OF MOTION AND MOTION TO EXCLUDE MERITS OPINIONS OF DR. HAL J. SINGER; MEMORANDUM AND POINTS OF AUTHORITIES IN SUPPORT OF THEREOF

[PUBLIC-REDACTED VERSION]

Judge: Hon. James Donato
Courtroom: 11, 19th Floor, 450 Golden Gate Ave, San Francisco, California, 94102

NOTICE OF MOTION

TO ALL PARTIES AND THEIR COUNSEL OF RECORD:

PLEASE TAKE NOTICE THAT on a date to be set by the Court, in Courtroom 11, 19th Floor, 450 Golden Gate Avenue, San Francisco, California, 94102, before the Honorable James Donato, the undersigned Defendants ("Defendants"), will and hereby do move the Court for an order excluding the testimony of Consumer Plaintiffs' proffered expert Hal Singer, on the ground that testimony on the referenced subjects is not expert testimony within the scope of Federal Rule of Evidence 702. This motion is based upon this Notice of Motion, the attached Memorandum of Points and Authorities, the concurrently-filed declaration of Justin P. Raphael, the attachments to that declaration, the concurrently filed Proposed Order, the pleadings and records on file in this action, and upon any additional evidence and argument that may be presented before or at the hearing of this motion.

Respectfully submitted,

Dated: April 20, 2023

By: */s/ Justin P. Raphael*
Justin P. Raphael

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ISSUE TO BE DECIDED

Whether the Court should exclude all testimony based on the injury and damage models of Plaintiffs' expert Dr. Hal J. Singer as unreliable under Rule 702 of the Federal Rules of Evidence and *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

INTRODUCTION

Both Consumer Plaintiffs and Plaintiff States seek to prove injury and damages based on calculations performed by Dr. Hal J. Singer. Google recognizes that the Court denied its motion to exclude Dr. Singer's testimony at class certification, which is now the subject of an appeal pending before the Ninth Circuit. *Mary Carr, et al v. Google LLC, et al*, No. 22-80140 (9th Cir.), Dkt. No. 10 (Feb. 27, 2023). However, Google files this motion to exclude Dr. Singer's models on the merits for several reasons. *First*, Dr. Singer has offered opinions based on models that this Court did not rely upon in certifying a class; the Court's order "leaves for another day the question of whether it might be presented to a jury." *In re Google Play Store Antitrust Litig.*, 2022 WL 17252587, at *13 (N.D. Cal. Nov. 28, 2022). *Second*, as to the formula that this Court did address on class certification, the Court has advised the parties that its ruling on class certification does not bind it on the merits. *Id.* at *4. Google therefore must preserve its position and create a record, particularly where Plaintiff States, who were not parties to the class certification proceedings, now seek to rely on Dr. Singer's models. *Third*, discovery on the merits has provided additional proof of the fundamental flaws in Dr. Singer's injury and damage models.

Dr. Singer offers six different models related to injury and damages—a smorgasbord of theories that are in tension with one another.[1] Broadly, those models estimate two kinds of alleged injuries: (1) passed-through overcharges and (2) artificially low Play Point subsidies.

Pass-Through. Dr. Singer's overcharge theory formed the basis for this Court's class certification decision: According to Dr. Singer, absent the challenged conduct, Google allegedly would have charged developers lower service fees for the use of the Google Play store, and

[1] He also advances a model based on a combination of two different models. *See* Declaration of Justin Raphael ("Raphael Decl.") Ex. 1, Singer Rep. ¶ 441. For a brief description, *see* Ex. 2, Leonard Rep. ¶¶ 55–61.

developers in turn allegedly would have reduced the prices of apps, subscriptions and in-app purchases—*i.e.*, developers would have "passed through" lower service fees. Importantly, this pass-through calculation is not merely an input to a model. Pass-through is determinative of the State and Consumer Plaintiffs' main theories of injury and overcharge damages. Merits discovery has confirmed the defects in the formula that Dr. Singer used to calculate pass-through.

First, a crucial assumption concededly is not met here. Dr. Singer's formula for calculating damages and injury is derived from a logit model of user demand. If logit is not a reliable model of user demand, then Dr. Singer's formula derived from logit is not reliable. Dr. Singer conceded that a model of logit demand assumes that all of the products being studied are substitutes in proportion to their shares. However, the Play store app categories Dr. Singer uses for his logit model of demand do not satisfy this assumption because there is no dispute that many of the apps in each category are not substitutes, let alone substitutes in proportion to their shares.

Second, Dr. Singer still fails to account for focal point pricing. Courts have recognized that companies that use focal point pricing may not reduce prices if they face lower costs. Indeed, the States' own economist conceded that focal point pricing means that "some firms would not change price in response to a change in the commission rate." Ex. 3, Rysman Dep. at 62:16-23. Dr. Singer's failure to account for this reason why developers would not pass through lower service fees means his pass-through formula cannot reliably estimate injury or damages.

Third, Dr. Singer's formula cannot reliably estimate pass-through injury or damages because it does not account for a developer's marginal costs other than the service fee. Dr. Singer concedes that pass-through of a service fee will be proportional to the developer's other marginal costs—the lower those other costs, the lower the pass-through and the lower the damages. However, Dr. Singer has not estimated any developer's marginal costs other than service fees. He thus has no way of knowing whether his pass-through formula over- or under-estimates damages.

Fourth, Dr. Singer continues to ignore data showing that virtually no developers reduced prices when Google reduced service fees in the real world, *i.e.*, there was virtually no pass-through. Instead, he relies on a formula that mathematically guarantees pass-through for every developer. A formula that guarantees injury is not a reliable model of whether injury occurred.

Subsidy Models. As an alternative to his pass-through theory, Dr. Singer offers a subsidy theory: absent the challenged conduct, Google supposedly would have offered consumers more Play Points that can be used to make purchases in the Google Play store. The Court found that "Dr. Singer's analysis stumbles a bit on this point," 2022 WL 17252587, at *13, and did not rely on Dr. Singer's Play Points theory in certifying a class. For that reason alone, Dr. Singer should not be able to testify based on a Play Points model on behalf of the Consumer Plaintiff class. *See Comcast Corp. v. Behrend*, 569 U.S. 27, 35 (2013) ("a model purporting to serve as evidence of damages in this class action must measure only those damages attributable to" the "theory of antitrust impact accepted for class-action treatment by the District Court."). Indeed, Dr. Singer testified at deposition that both his subsidy models are aggregate damages models.

Regardless, as to both the Consumer and State Plaintiffs, Dr. Singer's Play Point subsidy models are not reliable. One subsidy model calculates the amount of Play Points Google would have offered in the but-for world. This model is not reliable. *First*, although most users of the Play store did not sign up for the Play Points program in the actual world and were not damaged, Dr. Singer predicts injury and calculates damages for all users of the Play store without any basis to opine that *all* users of the Play store would have even signed up for Play Points. *Second*, Dr. Singer's model relies on the assumption that the but-for world for smartphone app transactions would resemble the long-distance telephone market in the 1980s.

Dr. Singer's other subsidy model is an entirely new model that he did not offer at the class certification stage. It uses the Amazon Coins program as a benchmark for the Play Points Google would have offered in a but-for world. This Amazon Coins model is flawed because it predicts injury and damages for all users without any evidence that all users would have signed up for Play Points. In addition, the Amazon Coins program is an entirely arbitrary benchmark.

BACKGROUND

Pass-Through. Users buy apps, subscriptions and in-app purchases of digital content ("IAPs") at prices set by developers. Ex. 1, Singer Rep. ¶ 339. Users do not pay fees to use the Google Play store, and only the small fraction of developers that sell digital goods in their apps pay Google service fees to do so. Thus, users could have paid more as a result of the challenged

conduct only if (1) developers would have paid Google lower service fees and (2) those developers would have passed through the developers' savings to users by setting lower prices for apps, subscriptions and IAPs. Ex. 4, Singer Merits Dep. at 55:24-57:4. Dr. Singer calculates the extent of any injury—i.e., damages—as the difference between the prices users paid in the actual world and the prices they would have paid in a but-for world of lower developer service fees.

Dr. Singer uses a formula based on logit demand that he put forward at the class certification stage. In that formula, pass-through damages depend on which app category in the Google Play store a developer chooses to list its app: the pass-through rate is simply 1 minus an app's share of its category in the Play store. Ex. 4, Singer Merits Dep. at 73:7-14. For example, if the Rosetta Stone app for learning a new language accounted for 5% of transactions in the "Education" category (which includes apps for "exam preparation, study-aids, vocabulary, educational games, language learning, and more," Ex. 2, Leonard Rep. ¶ 66), Dr. Singer predicts that Rosetta Stone would pass through 95% of any service fee savings.

Dr. Singer continues to ignore data regarding whether developers reduced their prices when Google actually reduced service fees in the real world. At the hot tub proceeding—based on a single SKU from a single developer—Dr. Singer tried to suggest to the Court that Google's expert's analysis was flawed because it did not account for the possibility that developers could have reduced prices by introducing new SKUs. Ex. 5, MDL Dkt. 302, Expert Proceeding Tr. ("Tr. of Hr'g, July 19, 2022"), at 72:4–77:16 (July 19, 2022). Discovery has revealed that effort as pure misdirection. Google's expert, Dr. Greg Leonard, has conducted multiple analyses of six different data sets of IAPs at the SKU level, covering hundreds of products. Every cut of the data found that, on average, the apps [redacted] their prices in the year following the service fee change, and that [redacted] of apps in any group offered customers a reduced price. Ex. 2, Leonard Rep. ¶¶ 39, 40. Dr. Leonard's analysis found that, at most, developers pass through [redacted] of reduced service fees on a weighted average basis—[redacted] for IAPs (the vast majority of transactions), [redacted] for paid downloads, and [redacted] for subscriptions. *Id.* ¶ 51 and Table 8. Dr. Singer *still* has not conducted any statistical analysis of his own.

Play Points. Dr. Singer also estimates injury and damages by calculating the Play Points that Google supposedly would have offered users in the but-for world. Users have to "opt in to Google Play Points," Ex. 4, Singer Merits Dep. at 162:17-19; Ex. 1; Singer Rep. ¶ 373, and more than [redacted] of users did not do so in the actual world. Ex. 4, Merits Singer Dep. at 162:20-163:4. Those users who do sign up earn Points for their purchases in the Play store. *Id*. at 183:10-13. Dr. Singer has not analyzed how an increase in the value of Play Points would affect demand for the Play Points program, Ex. 4, Singer Merits Dep. at 167:11-25, 168:19-170:12, and disclaimed any opinion about whether all users of Play Points would have signed up in the but-for world. *Id.* at 165:14-167:10. He nevertheless predicts injury and calculates damages for *all* users if Google offered more valuable Play Points.

Amazon Coins. Dr. Singer also estimates injury and damages by using the Amazon Coins program in the Amazon Appstore as a benchmark for the Play Point subsidies that Google supposedly would have offered consumers. *See* Ex. 1, Singer Rep. ¶ 420. Dr. Singer does so even though Amazon Coins differ from Play Points in several important ways. *See* Ex. 2, Leonard Rep. ¶ 111. For example, while users earn Play Points for their purchases in apps downloaded from Play, users must buy Amazon Coins separately and then use them to make purchases in the Amazon Appstore. Ex. 4, Singer Merits Dep. at 183:10-16. Further, while users can use Play Points to buy apps, subscriptions or IAPs, users cannot use Amazon Coins to buy subscriptions. *cf.* Ex. 6, Singer Rebuttal Rep. Errata ¶ 55. Dr. Singer's estimate of damages using Amazon Coins as a benchmark is 276% higher than Dr. Singer's other estimate of Play-Points damages. *See* Ex. 2, Leonard Rep. ¶ 110. Dr. Singer could not say which of these widely divergent estimates was more reliable. Ex. 4, Singer Merits Dep. at 179:10-180:10.

LEGAL STANDARD

Under Rule of Evidence 702, this court acts as a "gatekeeper" to ensure that expert testimony is reliable. *Ellis v. Costco Wholesale Corp.*, 657 F.3d 970, 982 (9th Cir. 2011). Plaintiffs have the burden to prove that Dr. Singer's testimony is "the product of reliable principles and methods." Fed. R. Evid. 702(c). *See Bourjaily v. United States*, 483 U.S. 171, 175–76 (1987). To meet their burden, Plaintiffs must show that Dr. Singer has used "a generally

accepted method . . .” *In re Capacitors Antitrust Litig.* (No. III), No. 17-md-02801-JD, 2018 WL 5980139, at *6 (N.D. Cal. Nov. 14, 2018) (Donato, J.); *accord Milan v. Clif Bar & Co.*, 340 F.R.D. 591, 601 (N.D. Cal. 2021) (Donato, J.) (calling this a “key factor”). Plaintiffs also must show that Dr. Singer’s methodology is “based on sufficient facts or data” and that he has “reliably applied the principles and methods to the facts of the case.” Fed. R. Evid. 702(b), (d); *U.S. v. Hermanek,* 289 F.3d 1076, 1093 (9th Cir. 2002). This standard precludes “more than subjective belief or unsupported speculation.” *Daubert*, 509 U.S. at 590–91. “[N]othing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert.” *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997). Courts exclude expert testimony based on assumptions that are “not sufficiently founded on facts.” *Guidroz-Brault v. Missouri Pac. R.R. Co.*, 254 F.3d 825, 831–32 (9th Cir. 2001).

ARGUMENT

I. THE COURT SHOULD EXCLUDE TESTIMONY BASED ON DR. SINGER’S FORMULA FOR PASS-THROUGH INJURY AND DAMAGES.

Discovery confirms that Dr. Singer’s formula for pass-through injury and damages is not reliable. It does not matter that a logit model is sometimes used for other kinds of antitrust analyses in other circumstances. As the Supreme Court has made clear, “scientific validity for one purpose is not necessarily scientific validity for other, unrelated purposes.” *Daubert*, 509 U.S. at 591. Plaintiffs have the burden to show that Dr. Singer’s formula in *this case* is reliable to determine in *this case* whether developers would have reduced their prices if they had paid lower service fees, and if so, by how much. Plaintiffs cannot meet that burden.

A. A Formula Based on Logit is Not Reliable Because Apps in Each Category Are Not Substitutes.

Plaintiffs cannot show that Dr. Singer’s “methodology properly can be applied to the facts in issue.” *Daubert*, 509 U.S. at 593. His formula for estimating injury and damages is based on a logit model of users’ demand for apps, subscriptions and IAPs. Ex. 5, Tr. of Hr’g, July 19, 2022 at 115:24-25. If logit does not reliably model user demand, then Dr. Singer’s formula derived from logit is not reliable. Economics is clear that logit cannot reliably model demand here, so Dr. Singer’s formula based on logit demand is not reliable.

There is no dispute that "one feature of logit demand is that all goods in the market where demand is being measured are substitutes." Ex. 7, Singer Dep. at 158:6-13. In fact, Dr. Singer has testified multiple times that a basic condition of a logit model is that each product being studied must be a substitute for the others in proportion to their shares:

> Q. And one of the restrictions on the Logit model is known as the independence of a relevant alternative's property?
>
> A. Yes.
>
> Q. And the independence of a relevant alternative's property says that all products being studied in the Logit model should be substitutes in proportion to their share?
>
> 8 A. I think that's fair.

Ex. 4, Singer Merits Dep. at 84:25-85:8; *see also* Ex. 5, Tr. of Hr'g, July 19, 2022 at 116:8-12; Ex. 7, Singer Dep. at 154:24-155:9. Dr. Singer's own source from his merits report confirms this testimony: "The logit model is based on the restrictive assumption known as Independence of Irrelevant Alternatives (IIA). This assumption implies that when the price of one product is increased, consumers switch to others in proportion to the relative shares of those products." Ex. 10, Gregory J. Werden & Luke M. Froeb, *The Effects of Mergers in Differentiated Products Industries: Logit Demand and Merger Policy*, 10 Journal of Law, Economics, & Organization 407, 420 (Oxford Univ. Press 1994) (citations omitted).

What Dr. Singer called the "standard textbook on Logit," Ex. 4, Singer Merits Dep. at 83:9-19, makes clear that a logit model of demand is not reliable if the products being studied are not substitutes in proportion to their shares: "Proportionate substitution can be realistic for some situations, in which case the logit model is appropriate. In many settings, however, other patterns of substitution can be expected, and imposing proportionate substitution through the logit model *can lead to unrealistic forecasts*." Ex. 8, Singer Dep. Ex. DX-1114, at 48.[2] As Nobel Laureate

[2] It does not matter whether these authorities refer to forecasts of "pass-through." Dr. Singer's formula for calculating pass-through is derived from a logit model of demand. Ex. 5, Tr. of Hr'g,

and Berkeley economics Professor Dan McFadden put it, a logit "model can produce *seriously misleading forecasts* if IIA fails." Ex. 9, Singer Dep. Ex. DX-1116, at 358 (emphasis added); *see also* Ex. 11, Daniel McFadden, "*Econometric Models of Probabilistic Choice," in Structural Analysis of Discrete Data with Econometric Applications*, pp. 222–223 (MIT Press, Cambridge 1981) ("…models satisfying [IIA] yield implausible conclusions when there are strong contrasts in the similarity of the alternatives").[3] Dr. Singer agrees that "the IIA does have to be respected." Ex. 4, Singer Merits Dep. at 94:5-10. And he testified that if consumers do not perceive apps in each category to be substitutes, then "you could get unreliable forecasts." *Id.* at 90:10-16; *see also id.* at 90:18-91:7.

According to these undisputed principles, Dr. Singer's formula derived from a logit demand model is not reliable because *he has conceded* that not all products in each app category are substitutes at all, let alone substitutes in proportion to their share of the categories:

Q. Is it your opinion that all apps in each Google Play app category are substitutes? A. No.	MR. RAPHAEL: And is it your opinion in this case that all apps in every Google Play category are substitutes in perfect proportion to their share? DR. SINGER: Not in perfect proportion.
Ex. 7, Singer Dep. at 158:14-16.	Ex. 5, Tr. of Hr'g, July 19, 2022 at 116:13-16.

See also Ex. 7, Singer Dep. at 159:6-25; Ex. 5, Tr. of Hr'g, July 19, 2022 at 116:25-117:3 ("Dr. Singer, is it your opinion that every app in each Google Play category is a substitute? DR.

July 19, 2022 at 115:24-25. If a logit model does not reliably forecast consumer demand in this case, then no formula derived from a logit model of demand is reliable.

[3] At class certification, the Court noted that Professor McFadden "modeled demand and supply conditions on a category-by-category basis." 2022 WL 17252587, at *11 (citing Case No. 4:11-cv-06714-YGR (N.D. Cal.), Dkt. No. 443-14 ¶ 211). The report that the Court cited is sealed, but the public version indicates that Professor McFadden did ***not*** use a logit model based on categories in the Apple App Store. Instead, he used a "log linear demand" model. *Id.*, Dkt. No. 643-11, ¶¶ 13-16, ¶ 180. Dr. Singer has no opinion regarding whether it would be appropriate to use a log linear model. Ex. 4, Singer Merits Dep. at 118:17-119:1. If a formula derived from logit were a reliable way to estimate app users' damages, it is hard to understand why an economist who won a Nobel Prize in part for work related to logit would not use that formula.

SINGER: I don't think that every one is a good substitute necessarily.").

Dr. Singer's admission is unsurprising because it is obvious that many apps in each Google Play store category are not substitutes, so their shares of those categories will not be informative regarding how their developers will set prices. There are many examples, but just one will do. QuickBooks Online Accounting is an accounting app. Thumbtack is an app that consumers can use to find professionals to help them with home improvement projects. Both are in the Business category. They are not substitutes. *See* Ex. 2, Leonard Rep. ¶ 66.

Dr. Singer may claim that he ran a regression to test the IIA assumption of proportional substitution for each app category. Not so. By his own admission, Dr. Singer's regression cannot show that substitution to other apps in the category would be proportional to other apps' shares because his regression does not measure where an app's share would go if it raised its price. Ex. 4, Singer Merits Dep. at 188:2-189:2. His regression merely purports to show that if a developer raised prices, then it would lose share of its category. *Id.* at 101:20-102:4.[4] Further, Dr. Singer could not identify *any* economic source to support his view his regression was an appropriate and reliable way to test for the IIA assumption of his logit model of demand. Ex. 4, Singer Merits Dep. at 102:6-20, 104:12-25, 105:7-21, 105:23-106:8. He testified: "I don't think that that's how you'd find it in a textbook." *Id.* at 104:12-25. Dr. Singer says that his regression tested whether logit "fit" the data, but when asked, "Are you aware of any source in economics that goodness of fit is an appropriate way to test for the IIA assumption," he answered: "No." *Id*. at 105:23-106:8.

The fact that Google identified the various app categories does not mean that all products in each category are substitutes, as required for a logit model to be reliable. Dr. Singer admits that Google did not identify the categories with the logit model or the IIA assumption in mind. *Id.* at 87:21-88:13. In fact, Google's maintenance of the categories says nothing about substitution between apps because Google does not even decide which apps are in each category. Developers each make that decision. *Id.* at 76:23-25. There is no evidence that any developer considers all

[4] The States' expert, Dr. Rysman, testified that this correlation does not indicate that logit is appropriate. Ex. 3, Rysman Dep. at 68:21-69:2.

other apps in the category it chooses to be substitutes for its app. Thus, it is no more reliable to determine how the developer of QuickBooks will set its price by determining its share of the Business category in the Google Play store than it would be to determine how a lamp manufacturer would set its prices using its share of all the products sold in the home furnishing section of a department store.

B. Dr. Singer's Formula Does Not Account for Focal Point Pricing.

Dr. Singer's model fails to account for focal point pricing—the wide-spread practice of choosing prices that end in "99." It is undisputed that from August 2016 to July 3, 3021, [redacted] of U.S. consumers' app transactions were set such that the retail prices ended in '99.'" *See* Ex. 2, Leonard Rep. at ¶ 32 n.7. Thus, Dr. Singer rightly testified that "focal point pricing is an important consideration here." Ex. 7, Singer Dep. at 202:2–7.

Focal point pricing is important because it affects whether developers would have reduced their prices if they had paid lower service fees. Suppose that (1) in the actual world, a developer sold a subscription for $1.99 subject to a 30% service fee of just under 60 cents and (2) in the but-for world the developer would have paid a service fee of 15%, or just under 30 cents—30 cents less than in the actual world. According to Dr. Singer's theory, the developer would pass on most of that 30 cents by reducing its price. But if the developer is committed to prices ending in "99," it would *not* reduce its $1.99 price by, say, 25 cents to $1.74. Thus, the States' economic expert, Dr. Marc Rysman, testified that he would not expect all developers that use focal point pricing to reduce their prices in reaction to lower service fees:

> And as a matter of economic principles, then, what you're saying is that, as a result of focal point pricing, some firms would not change price in response to a change in the commission rate?
>
> A. Yes. If focal point pricing is important, I would expect that.

Ex. 3, Rysman Dep. at 62:16-23.

As noted, Dr. Singer acknowledges that focal point pricing is important, but his formula does nothing to account for it. Other courts in this District have rejected expert testimony in

antitrust cases for that precise shortcoming. *E.g.*, *In re Apple iPhone Antitrust Litig.*, 2022 WL 1284104, at *8 (N.D. Cal. Mar. 29, 2022) ("Having failed to use or address the issue, the model does not provide a reliable method for determining but-for pricing in the presence of focal pricing."); *In re Lithium Ion Batteries Antitrust Litig.*, 2018 WL 1156797, at *3-5 (N.D. Cal. Mar. 5, 2018) (similar); *In re Optical Disk Drive Antitrust Litig.*, 303 F.R.D. 311, 324-25 (N.D. Cal. 2014) (similar). This Court should do the same.

C. Dr. Singer's Formula Does Not Account for Developers' Costs.

Dr. Singer's formula also is unreliable because does not account for developers' marginal costs other than service fees. Dr. Singer testified that, according to accepted economics, pass-through of a service fee that is a percentage of the developer's price will be proportional to the developer's other marginal costs. Ex. 7, Singer Dep. at 105:8–106:3, 107:23–109:14. *Accord* Ex. 2, Leonard Rep. ¶ 32. Suppose that Developer A and Developer B offer essentially the same product at the same price, and each has the same share in an app category. Even if Developer A and Developer B pay the same percentage service fee, Developer A would reduce its prices by more than Developer B because it has higher marginal costs other than the service fee. Thus, in order to determine the extent of any injury to consumers, an economist would have to know not just developers' service fees, but their other marginal costs as well.

Dr. Singer, however, has not estimated any developer's marginal costs other than the service fee and thus has not accounted for them in his formula. *See* Ex. 4, Singer Merits Dep. at 149:18–150:5; *see also* Ex. 7, Singer Dep. at 129:10–17, 186:6–18 (testifying that his pass-through damages "calculation doesn't reference the developer's other marginal costs in any way"). Dr. Singer's model thus will calculate the same pass-through rate and damages for consumers of two apps that have different marginal costs other than the service fee even though standard economics indicates that those developers would reduce prices (if at all) by different amounts. That is not a reliable model.

D. Dr. Singer's Formula Does Not Account for Available Data.

If the foregoing flaws in Dr. Singer's pass-through formula did not affect its reliability, then Dr. Singer should be able to show that his model accurately predicts how developers set

prices in the real world when Google reduced their service fee rates. However, Dr. Singer still has not conducted any statistical analysis showing that developers generally reduced their prices when Google reduced their service fee rates, which is what his model predicts *every single developer* would have done. Dr. Singer is avoiding the data because it does not support Plaintiffs' theory. *See Sidibe v. Sutter Health*, 333 F.R.D. 463, 498 (N.D. Cal. 2019) (finding pass-through model flawed where expert could not "explain how" defense expert's proof of far less than 100% pass-through was consistent with her theory, which "assume[s]" 100% pass-through).

Instead of proving pass-through, Dr. Singer has chosen a formula to guarantee it. Dr. Singer concedes that an app's pass-through rate will always be positive as long as it does not have a 100% share of its category. Ex. 4, Singer Merits Dep. at 73:15-19. That guarantees pass-through because no app has 100% share of its category. A model that guarantees pass-through may be useful to Plaintiffs, but it is not reliable. *See Sibide*, 333 F.R.D. at 497 (excluding pass-through analysis by expert who "assumed what she set out to prove—that the method by which health plans pass on their costs through their customers' premiums is in fact 'formulaic'").

II. DR. SINGER'S SUBSIDY MODELS ARE UNRELIABLE FOR PROVING INJURY OR DAMAGES.

The Court has not certified a class based on either of Dr. Singer's Play Point models for injury and damages. 2022 WL 17252587, at *13 ("The Court has not relied on the Play Points model for [class] certification, and leaves for another day the question of whether it might be presented to a jury."). Accordingly, Dr. Singer cannot opine on damages to the Consumer Plaintiff class based on those models. *Comcast*, 569 U.S. at 32. Indeed, Dr. Singer's opinion is that these Play Points models are designed to calculate *aggregate* damages. Ex. 4, Singer Merits Dep. at 163:10-25 ("What I'm trying to solve for is the extent of a subsidy that Google would have offered … in the aggregate across all users") (Play Points); *id.* at 164:1-15 (same); *id.* at 165:14-166:4 ("What the model is telling us is what's the [] aggregate or average subsidy that Google offers."); *id.* at 171:22-172:5 (Amazon Coins). Regardless, both of Dr. Singer's Play Point damages models are unreliable and should be excluded as to all plaintiffs.

A. Dr. Singer's Play Points Model is Unreliable.

The Play Points subsidy model that Dr. Singer advanced at the class certification stage is unreliable because it makes several baseless assumptions that dramatically affect Dr. Singer's analysis of injury and damages. *First*, although most users did not sign up for the Play Points program in the actual world, Ex. 4, Singer Merits Dep. at 162:20–163:4, Dr. Singer uses his Play Points model to determine injury and calculate damages for all users of the Google Play store. But Dr. Singer has no basis to opine that *all* users were injured or damaged because *all* of them would have signed up for Play Points. In fact, at his deposition, Dr. Singer disclaimed "the opinion that all users in the but-for world would have signed up for the Google Play Points program," saying "I don't know if the model can tell us that." *Id.* at 165:14-21. He further testified that "I don't think the model tells you whether a user will sign" up. *Id.* at 166:15–167:10.

In his report, Dr. Singer posited that "[c]onsumers would have enhanced economic incentives to enroll and participate in a Play Points offering more valuable incentives in the but-for world," Ex. 1, Singer Rep. ¶ 381, which he called a "safe inference" at his deposition. Ex. 4, Singer Merits Dep. at 167:4. But "there are costs to opting into a rewards program," *id.* at 163:5-8, and Dr. Singer has not "calculated the percentage credit on the price that would be necessary for any consumer to find it worth it to overcome the cost of signing up and sign up for the Play Points program." *Id.* at 168:19–169:7, 167:11-25. He has not analyzed the relationship between the value of Play Points and demand for the program or the elasticity of demand for that program. Dr. Singer therefore has no basis to opine that more valuable Play Points would have stimulated *all* users to sign up for the Play Points program. All he can do is speculate that "consumers *could* be automatically enrolled in Play Points." Ex. 1, Singer Rep. ¶ 381 (emphasis added). But Dr. Singer acknowledged that some rewards programs do not automatically enroll users. Ex. 4, Singer Merits Dep. at 175:21-176:9. Dr. Singer has no evidence that Google would have automatically enrolled users in Play Points.

Second, Dr. Singer's Play Points model improperly uses the market for long-distance telephone service in the 1980s as a benchmark for modeling the but-for world. *In re Apple iPhone Antitrust Litig.*, 2022 WL 1284104, at *4 (excluding expert opinion for "cherry picking"

benchmarks). One input into Dr. Singer's Play Points model is Google's market share in the but-for world, which Dr. Singer estimates would have been 60% because that was AT&T's share of the long-distance telephone services market after 1982. *See* Ex. 1, Singer Rep. ¶ 386 & Table 16; *see also id.* ¶ 331 & Table 8; *cf. also* Ex. 2, Leonard Rep. ¶¶ 91-97. Another input into Dr. Singer's Play Points model is the elasticity of demand. *See* Ex. 1, Singer Rep. ¶ 328. Rather than calculate this elasticity, Dr. Singer relied on figures from an article about long-distance telephone services after 1982. *See id.* ¶¶ 326–332 & Table 8; *cf.* Ex. 2, Leonard Rep. ¶¶ 101-104, 109.

The market for landline long-distance telephone services in the 1980s is not a reliable benchmark for a competitive but-for world in markets related to smartphone apps and app transactions. After all, Dr. Singer himself opines that even "*1990s-era* 'flip phones'" are "economically irrelevant here." *Id.* ¶ 70 (emphasis added).[5] Dr. Singer's only justification for using 1980s long-distance calling is that AT&T was "benefitting from network effects" before the divestiture order. Ex. 6, Singer Rebuttal Rep. Errata ¶ 42. However, Dr. Singer cannot explain why he chose AT&T rather than any other firm that benefits from network effects and faces a competitive market. Such cherry-picking is not reliable.

B. Dr. Singer's Amazon Coins Model is Unreliable.

For the first time at the merits stage, Dr. Singer uses the Amazon Coins program in the Amazon Appstore as a benchmark to develop an alternative estimate of the value of Play Points that Google supposedly would have offered users in the but-for world. Dr. Singer uses that model "for calculating *aggregate* damages," Ex. 1, Singer Rep. ¶ 418 (emphasis added), and thus cannot present it on behalf of the putative class. The model also is not reliable for several reasons.

First, as with his model in which he directly calculates the Play Points Google supposedly would have offered, Dr. Singer's Amazon Coins model calculates aggregate damages for *all* users even though Dr. Singer has no basis to assume that all users would have signed up for Play Points. He assumes "that it would be irrational and illogical for a consumer to pass up" the savings he

[5] Dr. Singer's suggestion, Ex. 1, Singer Rep. ¶ 329, that using AT&T long-distance is "conservative" because Alcoa had an even lower share of the steel market after World War II simply confirms that Dr. Singer's benchmarks have nothing to do with this case.

says Google would have offered, but this is speculation: Dr. Singer has not "studied, with respect to [his] Amazon Coins model, the percentage of savings that would be necessary to get all users of the Google Play Store to sign up." Ex. 4, Singer Merits Dep. at 172:13-173:7.

Second, Dr. Singer has not demonstrated that the Amazon Coins program is a reliable benchmark for a Google Play Points program. Dr. Singer assumes Google would have offered Play Points equal to the same percentage of Play's revenue as the percentage of Amazon Coins discounts to Amazon's revenue from the Amazon Appstore. Ex. 1, Singer Rep. ¶ 420. That comparison is completely arbitrary. Dr. Singer does not explain why Google would have offered Play points equal to the same percentage of its revenue as the Amazon Appstore when he estimates that Google's market share in the but-for would have been more than [redacted] times Amazon's actual market share. *See id.* ¶ 331 (estimating Google's but-for market share at 60%); *id.* at ¶ 120 (estimating Amazon Appstore's market share at [redacted]). Nor has Dr. Singer accounted for significant differences between Play Points and Amazon Coins. Users earn Play Points from buying apps, subscriptions or IAPs. Amazon Coins must be purchased separately. Ex. 4, Singer Merits Dep. at 183:10-16. Users can redeem Play Points for apps, subscriptions or IAPs, but they cannot redeem Amazon Coins for subscriptions. *See* Ex. 2, Leonard Rep. ¶ 111. Dr. Singer ignores these distinctions.

Dr. Singer notes that "[t]he Amazon Appstore, like the Play Store, participates in [the] Android App Distribution Market." Ex. 1, Singer Rep. ¶ 418. But numerous other app stores participate in the alleged Android app distribution market. Dr. Singer has not explained why the Amazon Appstore is a better benchmark than those other app stores. Nor did he analyze whether any other app stores that his report identifies as potential benchmarks would be better benchmarks than the Amazon Appstore. Ex. 4, Singer Merits Dep. at 183:1-5. That makes his model based on Amazon Coins "arbitrary and not based on any legitimate scientific, economic, or mathematic principle." *In re Apple iPhone Antitrust Litig.*, 2022 WL 1284104, at *3 (excluding benchmark analysis for "cherry-picking" app stores as benchmarks).

CONCLUSION

Dr. Singer's testimony based on his injury and damages models should be excluded.

Respectfully submitted,

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I, Justin P. Raphael, am the ECF User whose ID and password are being used to file this document. In compliance with Civil Local Rule 5-1(h)(3), I hereby attest that each of the signatories identified above has concurred in this filing.

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